theoretical work as funds and the gifts of apparatus may permit. The laboratory will be open for the use of students from technical institutions already providing elementary classes in the theory of flight, and also for public demonstrations in order to spread an interest in aeronautical science. Men who have undergone courses of training in engineering schools, and competent engineers and mechanics, will be eligible as students. The practical work of students will be directed to securing machines offering greater stability and trustworthiness, lower power and fuel consumption, diminished capital cost and expense of maintenance, and a higher factor of safety than the apparatus now used. In order that an early start may be made, two machines are to be bought at once, and the students will build all further machines, and also those of selected inventors whose ideas are judged to be worthy of construction and practical trial. The funds will be administered by an independent committee of management, including practical men of science. Mr. Patrick Y. Alexander has offered to equip the proposed laboratory with the necessary practical apparatus. The new institution will probably be called the Rolls Memorial School.

The approaching exhaustion of the world's richer known lead-producing districts gives special interest to the study of any possible source of lead in countries where increasing prices or improved methods may soon make even low-grade deposits valuable. Accordingly the United States Geological Survey has published a report by L. J. Pepperberg on the little-known lead field of the Bearpaw Mountains, in Montana. This report will be contained in the Survey's Bulletin 430, giving the results of some work done by the survey's geologists in 1909, but has also been issued separately in an advance chapter on lead and zinc. The region considered was long ago prospected for gold and silver, but no valuable mineral deposits were found until about 1888, when work was begun on a vein of argentiferous galena near Lloyd. A claim on this vein was patented in 1892, but work was suspended because it proved to be unprofitable. Since that time several other claims have been patented and some work has been done, though no ore has yet been produced. The rocks in this region are widely mineralized. The ores were probably deposited by hot waters ascending from great depths. Later, during the long-continued wearing down of the Bearpaw Mountains by erosion and weathering, the metallic minerals were dissolved, carried down again into the rocks by rain water, and redeposited in concentrated form within moderate distances of the surface. The ore contains a little gold, 40 or 50 ounces of silver to the ton and 50 or 60 per cent. of lead and is easily crushed and concentrated. More thorough prospecting in this region may develop ore bodies of greater value.

UNIVERSITY AND EDUCATIONAL NEWS

By the will of the late Mrs. Frances Irving Weston, of Boston, the Massachusetts Institute of Technology is given $10,000 for two scholarships.

By the will of Mr. Henry Dixon, London University receives £10,000, the income of which is to be used for scientific investigation.

Dr. Frederick W. Carpenter, of the University of Illinois, will spend the coming academic year in Europe on scientific work. His place at the university has been filled by appointment as *ad interim* instructor, of Mr. William F. Allen, who has been for several years in charge of the biological laboratory maintained by the University of California, at Pacific Grove.

Dr. Addison W. Moore, professor of philosophy in the University of Chicago, will spend the winter and spring at Stanford University, to fill the vacancy caused by the absence of Dr. George H. Sabine.

Dr. Edward F. Malone, of the Wistar Institute of Anatomy, has been appointed assistant professor of anatomy in the department of the University of Cincinnati of which Professor H. McE. Knower was recently appointed head.

DR. J. FRANK DANIEL, instructor in zoology in the University of Michigan, has been appointed to a newly-established instructorship in comparative anatomy in the University of California.

PROFESSOR JACOB WESTLUND has been promoted to a full professorship of mathematics at Purdue University.

AT the University of Kansas Drs. C. H. Ashton and J. N. Van der Vries have been promoted from assistant professorships to associate professorships of mathematics. Dr. U. G. Mitchell, of Princeton University, and Drs. Arthur Pitcher and M. B. White, of the University of Chicago, have been appointed assistant professors of mathematics.

MR. A. E. FINDLAY, has been appointed to a newly instituted lectureship in applied chemistry at Sheffield.

AS successor of Professor Verworn, Professor Jensen, of Breslau, has been called to Göttingen as professor of physiology.

DISCUSSION AND CORRESPONDENCE

A SUGGESTION AS TO THE CARE OF TYPES

EVERY student of zoology or botany is aware of the immense importance of types, the original specimens upon which new names have been based. At the present time such types are scattered over the country, in public and private collections, and many of them are likely to be destroyed or lost. Many, though in safe custody, are in such out-of-the-way places that it is practically impossible to gain access to them.

I do not believe that any naturalist who has visited many museums can be satisfied with the care usually taken of types. On the contrary, it would be easy for any one with much experience to write an article in the best "muck-raking" style, describing some of the things he has seen. Possibly such an article might do good, but nobody is willing to write it. At the same time, something ought to be done. It occurs to me that a possible way to mend matters would be for the American Association to appoint a committee to investigate and report. This committee, of perhaps six members, should be permanent, and should have enough funds placed at its disposal to enable its subcommittees of two or three to visit all the principal institutions in which types are preserved. In the course of a few years it would be possible to report the exact conditions found, and certain museums could be designated as fit places for the preservation of types. Neither the association nor its committee could force anybody to do anything, except through the pressure of scientific public opinion, but this would doubtless in many cases be sufficient.

A few general principles might be enunciated, for example:

1. A type is, from its nature, in some sense the property of the scientific world. Thus, every one would consider it a criminal act to purchase and then willingly destroy a type. It must be considered reprehensible to permit types to exist where they are in serious danger of being destroyed, and, in particular, steps should be taken to prevent the sale of types to miscellaneous unknown collectors after the death of the original owner.

2. Every institution possessing types should publish a complete list of those in its custody, and subsequently annual lists of additions. It can then be held strictly accountable for their care, and students can ascertain where the types are to be seen.

3. No types should ever be loaned out, and, especially, they should never be sent through the mails. Experience shows that institutions which profess to have a rule against the loaning of types can not be trusted to keep it. I regret to say that I have in the past occasionally loaned types to reliable students and institutions, and have found it extremely difficult to get them back. It may be necessary some day to publish a few explicit statements under this head.

It is impossible to absolutely safeguard types in all instances. It must be recognized that *some* risks, under existing circumstances, are unavoidable. For example, I have at this moment in my custody considerable collec-